

Preface

These notes come from the lectures delivered during the conference “Compactifying Moduli Spaces”, held in May 2013 at the Centre de Recerca Matemàtica (CRM) in Barcelona. In them, the speakers report on recent research on moduli theory, from different points of view.

In recent years, moduli spaces have been investigated for their diverse applications to Algebraic Geometry, Number Theory, String Theory, and Quantum Field Theory, just to mention a few. In particular, the notion of compactification of moduli spaces has been crucial for solving various open problems and long-standing conjectures.

The compactification problem can be approached by various techniques. Geometric Invariant Theory, Hodge Theory and the Minimal Model Program (MMP) come into play as different approaches to construct and compactify moduli spaces. All these approaches shed light on particular aspects of moduli problems.

In this volume, Valery Alexeev reports on compactification of moduli spaces in a large class where computations are possible, namely that of weighted stable hyperplane arrangements (shas).

It is our hope that these lectures notes will illustrate the wide and rich variety of ideas and theories that were developed with the general aim of understanding moduli spaces and their geometry.

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